IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS

Applicant(s)	Pham	**APPEAL BRIEF**
Serial No.	10/624,165	
Filing Date	7/21/2003	
Group Art Unit	2195	
Examiner Name	To, Jennifer N.	
Confirmation No.	6359	
Attorney Docket No.	100.554US01	
Title: PERIODIC EVENT EXECUTION CONTROL MECHANISM		

1. Introduction

On January 16, 2009, Appellant filed a notice of appeal from the rejection of claims 1-23 set forth in the Office Action mailed October 16, 2008 (the claims having been twice rejected). An Appeal Brief fee under 37 C.F.R. §41.20(b)(2) was previously paid in this application (without a decision on the appeal). Accordingly, this Appeal Brief is accompanied by $30.00, which is the difference the $510.00 fee that was previously paid and the current Apeal Brief fee under 37 CFR § 41.20(b)(2).

2. Real Party in Interest

The real party in interest in the above-captioned application is the assignee, ADC DSL Systems, Inc.

3. Related Appeals and Interferences

There are no appeals or interferences known to Appellant which will have a bearing on the Board's decision in the present appeal.

4. Status of the Claims

Claims 1-5, 8-13, 16-21, and 23 are pending in the application.

Claims 6, 7, 14, 15, and 22 were cancelled by Applicant in a response filed on August 7,

2008.

In the Office Action, claims 1-5, 8-13, 16-21, and 23 were rejected under 35 USC § 102(e).

This rejection of claims 1-5, 8-13, 16-21, and 23 is the subject of this appeal.

5. Status of Amendments

No amendment has been filed subsequent to the Office Action mailed October 16, 2008.

6. Summary of Claimed Subject Matter

Pursuant to 37 C.F.R. §41.37(c)(1)(v), Appellant provides the following concise explanation of the subject matter defined in each independent claim with reference to the specification by page and line number and to the drawings by reference number. Appellant submits that the citations to the specification and drawings are not intended to be exhaustive and that other support for the various claims may also be found throughout the specification and drawings.

A. Claim 1

Claim 1 is directed to a method of scheduling a plurality of periodic events. (*See, e.g.,* FIG. 2 and page 6, lines 1 – 25). Each periodic event has an associated periodic interval of time and an associated set of services. (*See, e.g.,* page 6, lines 5 – 15). The method includes determining when one of the plurality of periodic events occurs. (*See, e.g.,* page 6, lines 4 – 15 and block 202 of FIG. 2). The method also includes determining, for each of the set of services associated with that periodic event, if that service is enabled for execution. (*See, e.g.,* page 6, lines 16-18 and block 204 of FIG. 2). The method also includes distributing the execution of the services associated with that periodic event that are enabled throughout a next periodic interval of time associated with that periodic event following the occurrence of that periodic event. (*See, e.g.,* page 6, lines 18 – 25 and blocks 206 of FIG. 2).

B. Claim 9

Claim 9 is directed to a system that has a periodic event scheduler. (*See, e.g.,* periodic event scheduler 106 of FIG. 1; page 4, lines 26 – 28). The periodic event scheduler schedules a plurality of periodic events, wherein each periodic event has an associated periodic interval of

time and an associated set of services. (*See, e.g.,* page 6, lines 5 – 15). The system also includes a tick generator that generates interrupts in response to clock ticks. (*See, e.g.,* tick generator 102 of FIG. 1; page 4, lines 21 – 26). The system also includes an interrupt handler that receives the interrupts from the tick generator and executes the periodic event scheduler in response to the interrupt. (*See, e.g.,* tick generator 102 of FIG. 1; page 4, lines 26 – 28). The periodic event scheduler determines when one of the plurality of periodic events occurs. (*See, e.g.,* page 6, lines 4 – 15). The periodic event scheduler also determines, for each of the set of services associated with that periodic event, if that service is enabled for execution. (*See, e.g.,* page 6, lines 16 – 18). The periodic event scheduler distributes the execution of the enabled services associated with that periodic event throughout a next periodic interval of time associated with that periodic event following the occurrence of that periodic event. (*See, e.g.,* page 6, lines 18 – 25).

C. Claim 17

Claim 17 is directed to a telecommunication device. (*See, e.g.,* FIG. 6). The device includes an interface that couples the telecommunication device to a communication medium. (*See, e.g.,* interface 604 and page 14, line 23 – 27). The device includes a tick generator that generates interrupts in response to clock ticks. (*See, e.g.,* clock 625 of FIG. 6; page 15, lines 19 – 24). The device includes control logic coupled to the interface that determines when one of a plurality of periodic events occurs. (*See, e.g.,* control logic 622 of FIG. 6; page 16, line 21 – page 17, line 6 and page 6, lines 4 – 15). Each periodic event has an associated periodic interval of time and an associated set of services. (*See, e.g.,* page 6, lines 5 – 15). The control logic determines, for each of the set of services associated with that periodic event, if that service is enabled for execution. (*See, e.g.,* page 6, lines 16 – 18). The control logic distributes the execution of the enabled services associated with that periodic event throughout a next periodic interval of time associated with that periodic event following the occurrence of that periodic event. (*See, e.g.,* page 6, lines 18 – 25).

7. Grounds of Rejection to be Reviewed on Appeal

The issue presented in this Appeal is whether the Examiner erred in rejecting claims 1-5, 8-13, 16-21, and 23 under 35 USC § 102(e) as being anticipated by Dailey (U.S. Application Publication No. 2003/0217093).

8. Arguments

A. Rejection of claims under 35 USC § 102(e).

i. The Applicable Law

35 U.S.C. § 102 provides in relevant part:

> A person shall be entitled to a patent unless-
>
> > (e) the invention was described in - (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for the purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language,

A claim is anticipated under 35 U.S.C. § 102 only if each and every element as set forth in the claim is found, either expressly or inherently, in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ 2d 1051,1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the...claim." *Richardson v. Suzuki Motor Co.* 868 F.2d 1226, 1236, 9 USPQ 2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim, but identical terminology is not required. *In re Bond*, 910 F. 2d 831, 15 USPQ 2d 1566 (Fed. Cir. 1990).

Anticipation focuses on whether a claim reads on a product or process disclosed in a prior art reference, not on what the reference broadly teaches. *Kalman v. Kimberly-Clark Corp.,* 713 F.2d 760, 218 USPQ 781 (Fed. Cir. 1983). To anticipate a claim, a reference must disclose every element of the challenged claim and enable one skilled in the art to make the anticipating subject matter. *PPG Industries, Inc. v. Guardian Industries Corp.,* 75 F.3d 1558, 37 USPQ 2d 1618 (Fed Cir. 1996).

ii. Rejection of claims 1-5, 8-13, 16-21, and 23

Claims 1-5, 8-13, 16-21, and 23 were rejected under 35 USC § 102(e) as being

anticipated by Dailey (U.S. Application Publication No. 2003/0217093).

Applicant respectfully submits that the Examiner erred in making this rejection.

Claim 1 of the present application recites, in part, "determining when one of the plurality of periodic events occurs; determining, for each of the set of services associated with that periodic event, if that service is enabled for execution; and distributing the execution of the services associated with that periodic event that are enabled throughout a next periodic interval of time associated with that periodic event following the occurrence of that periodic event."

The Examiner took the position that "determining, for each of the set of services associated with that periodic event, if that service is enabled for execution" is taught in paragraphs [0028]-[0031] of Daily. The Examiner asserted that this language teaches "when the periodic event occurs, based on the bit associated with the task, the task manager determining which task is enable for execution".

Applicant traverses the Examiner's characterization of the operation of Dailey. The Examiner appears to be referring to the operation of the service variable 59 of Dailey. The service variable 59 of Dailey is used to determine when a particular periodic event has occurred using a single timer variable. This is clearly shown in the flow charts (FIGS. 2 and 3) of Dailey. As can be seen in FIG. 2, bits of the service variable 59 are set based on *the state of the timer variable 58*, not based on whether a particular periodic task has been enabled for execution. The processing of FIG. 2 of Dailey is part of an interrupt handler that is executed on each periodic tick interrupt. As shown in FIG. 3 of Dailey, in block 40 of Dailey, the task manager initially clears the service variable 59 so that the bits of the service variable 59 are set only by the interrupt handler. Then, the task manager checks if the "tick expired" variable has been set by the interrupt handler in connection with performing the processing of FIG. 2 (block 42). Then, the task manager cycles through the bits of the service variable 59 to determine if it is time to execute the various periodic tasks. This determination is made based on whether the bit of the service variable 59 associated with each periodic task is set. If the associated bit is set, it is time to execute the associated particular periodic task. It is noted that FIG. 3 clearly shows that the associated bit of the service variable 59 is cleared each time the associated periodic task is executed. (See, e.g., blocks 47, 50, and 53). Thus, *the service variable 59 is used as a single timer variable for all of the periodic tasks and is not used for enabling or disabling execution of the periodic tasks.* See, e.g., Dailey, paragraph [0008] ("Technical advantages of certain

embodiments of the present invention include the ability to use a single service variable to maintain a timer for multiple processing tasks, instead of using several computer variables.").

Dailey is silent as to any mechanism for enabling and disabling the execution of any of the periodic processing tasks (and the checking for such enabling or disabling). Indeed, Dailey indicates that the schedule of such tasks does not change. See, e.g., Dailey, paragraph [0020] ("Typically, microcontroller 20 utilizes task manager 22 to manage specific tasks retained in memory. Generally, these tasks are performed at various times and the schedule for performing the tasks usually does not change. Specifically, task manager 22 may manage these tasks to be performed at given intervals.").

Claims 2-5 and 8 depend from claim 1. Therefore, at least the same arguments set forth above with respect to claim 1 apply to these dependent claims.

Furthermore, claim 3 of the present application recites "configuring at least one of the set of services associated with that periodic event in a one-shot mode in which the service is enabled for execution one time and then is disabled". The Examiner took the position that this language from claim 3 is taught in paragraph [0035] and in claim 14 of Dailey.

Paragraph [0035] of Dailey is as follows: "[0035] Time variable 58 may increment each tick interval 61. The frequency of tick interval 61 may be a multiple of the frequency of the most frequent processing task. For example, if the most frequent processing task is to be performed once per second, tick interval 61 may have a frequency of expiring twice per second. In some embodiments, the frequency for the most frequent task may be a multiple of two times the frequency of tick interval 61. In other embodiments, other multiples may be used, including non-integer multiples."

Claim 14 of Dailey is: "14. A method of distributing computer tasks using a tick interval in a computer system, the method comprising: generating a tick interval for the computer system, the tick interval occurring at least twice as frequently as a most frequently occurring processing task among a predetermined set of processing tasks; performing not more than one processing task from the predetermined set of processing tasks at each tick interval; and performing the most frequently occurring processing task at every other tick interval. "

Neither of the portions of Dailey cited by the Examiner describes "a one-shot mode in

which the service is enabled for execution one time and then is disabled" as recited in claim 3 of the present application. Instead, the cited portions merely describe "performing not more than one processing task from the predetermined set of processing tasks at each tick interval".

Also, claim 4 of the present application recites "configuring at least one of the set of services associated with that periodic event in a burst mode in which the service is enable for execution a predetermined number of times and then is disabled." The Examiner took the position that this language from claim 4 is taught in paragraph [0004] of Dailey.

Paragraph [0004] of Dailey is as follows: "[0004] Often, a microcontroller may have to perform real-time processing tasks. Because the speed and power of a microprocessor is limited, a distributed workload is desirable for managing all these tasks. In certain instances, real-time processing tasks may have their processing time delayed because several non-real-time processing tasks are grouped to be performed during that particular periodic interval. Since these tasks may occur at one periodic interval, handling of tasks or groups of tasks can lead to spikes in the workload. For example, if a first group of processing tasks are to be processed every quarter second, and a second and third group are to be processed every half second and every second, respectively, then at every second interval, a microcontroller may process all of these tasks in a burst of activity."

The portion of Dailey cited by the Examiner describes a prior art approach in which the execution of several periodic tasks are bunched. Dailey does not teach "a burst mode in which the service is enable for execution a predetermined number of times and then is disabled" as recited in claim 4 of the present application.

It is respectfully submitted that at least the same arguments set forth above with respect to claim 1 apply to the rejections of claims 9-13, 16-21, and 23. Moreover, it is respectfully submitted that at least the same arguments set forth above with respect to claim 3 apply to the rejections of claims 11 and 19, and at least the same arguments set forth above with respect to claim 4 apply to the rejections of claims 12 and 20.

Accordingly, it is respectfully submitted that the Examiner erred in rejecting claims 1-5, 8-13, 16-21, and 23 under 35 USC § 102(e) as being anticipated by Dailey (U.S. Application

Publication No. 2003/0217093). Reversal of the rejection of claims 1-8 is respectfully requested.

Respectfully submitted,

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/Jon M. Powers/
Jon M. Powers
Reg. No. 43,868

Attorneys for Appellant
Fogg & Powers LLC
P.O. Box 581339
Minneapolis, MN 55458-1339
T 612 332-4720
F 612 332-4731

CLAIMS APPENDIX

1. A method of scheduling a plurality of periodic events, wherein each periodic event has an associated periodic interval of time and an associated set of services, the method comprising:

determining when one of the plurality of periodic events occurs;

determining, for each of the set of services associated with that periodic event, if that service is enabled for execution; and

distributing the execution of the services associated with that periodic event that are enabled throughout a next periodic interval of time associated with that periodic event following the occurrence of that periodic event.

2. The method of claim 1, wherein one of the periodic events occurs when a periodic interval of time associated with that periodic event elapses.

3. The method of claim 1, further comprising configuring at least one of the set of services associated with that periodic event in a one-shot mode in which the service is enabled for execution one time and then is disabled.

4. The method of claim 1, further comprising configuring at least one of the set of services associated with that periodic event in a burst mode in which the service is enable for execution a predetermined number of times and then is disabled.

5. The method of claim 1, further comprising configuring at least one of the set of services associated with that periodic event in a continuous mode in which the service is enable and executed continuously.

8. The method of claim 1, wherein distributing the execution of the enabled services includes executing successive enabled services on successive clock ticks following the clock tick on which that periodic event occurred.

9. A system comprising:

a periodic event scheduler that schedules a plurality of periodic events, wherein each periodic event has an associated periodic interval of time and an associated set of services;

a tick generator that generates interrupts in response to clock ticks; and

an interrupt handler that receives the interrupts from the tick generator and executes the periodic event scheduler in response to the interrupt;

wherein the periodic event scheduler:

determines when one of the plurality of periodic events occurs; and

determines, for each of the set of services associated with that periodic event, if that service is enabled for execution;

distributes the execution of the enabled services associated with that periodic event throughout a next periodic interval of time associated with that periodic event following the occurrence of that periodic event.

10. The system of claim 9, wherein one of the periodic events occurs when a periodic interval of time associated with that periodic event elapses.

11. The system of claim 9, wherein the periodic event scheduler is operable to configure at least one of the set of services associated with that periodic event in a one-shot mode in which the service is enabled for execution one time and then is disabled.

12. The system of claim 9, wherein the periodic event scheduler is operable to configure at least one of the set of services associated with that periodic event in a burst mode in which the service is enable for execution a predetermined number of times and then is disabled.

13. The system of claim 9, wherein the periodic event scheduler is operable to configure at least one of the set of services associated with that periodic event in a continuous mode in which the service is enable and executed continuously.

16. The system of claim 9, wherein the periodic event scheduler distributes the execution of the enabled services by executing successive enabled services on successive clock ticks following the clock tick on which that periodic event occurred.

17. A telecommunication device comprising:

an interface that couples the telecommunication device to a communication medium;

a tick generator that generates interrupts in response to clock ticks; and

control logic coupled to the interface that:

determines when one of a plurality of periodic events occurs, wherein each periodic event has an associated periodic interval of time and an associated set of services;

determines, for each of the set of services associated with that periodic event, if that service is enabled for execution; and

distributes the execution of the enabled services associated with that periodic event throughout a next periodic interval of time associated with that periodic event following the occurrence of that periodic event.

18. The telecommunications device of claim 17, wherein one of the periodic events occurs when a periodic interval of time associated with that periodic event elapses.

19. The telecommunications device of claim 17, wherein the control logic is operable to configure at least one of the set of services associated with that periodic event in a one-shot mode in which the service is enabled for execution one time and then is disabled.

20. The telecommunications device of claim 17, wherein the control logic is operable to configure at least one of the set of services associated with that periodic event in a burst mode in which the service is enable for execution a predetermined number of times and then is disabled.

21. The telecommunications device of claim 20, wherein the control logic is operable to configure at least one of the set of services associated with that periodic event in a continuous mode in which the service is enable and executed continuously.

23. The telecommunications device of claim 17, wherein the periodic event scheduler distributes the execution of the enabled services by executing successive enabled services on successive clock ticks following the clock tick on which that periodic event occurred.

EVIDENCE APPENDIX

There is nothing to present in the Evidence Appendix.

RELATED PROCEEDINGS APPENDIX

There is nothing to present in the Related Proceedings Appendix.